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**IMPORTANT:**

**Tennessee's Fetal Assault Law on Pregnancy and Addiction** sunset on July 1, 2016, but the Safe Harbor Act remains.

**The Safe Harbor Act of 2013** states that if a woman enters both prenatal care and addiction treatment by her 20th week of pregnancy, she will not lose custody of her child solely due to her drug use.

**Women need to be encouraged to seek care as early as possible.**

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# All babies have one thing in common.

# They need healthy moms.

## SUBSTANCE MISUSE

### Facts You and Your Patients Should Know

# Addressing A Heartbreaking Problem

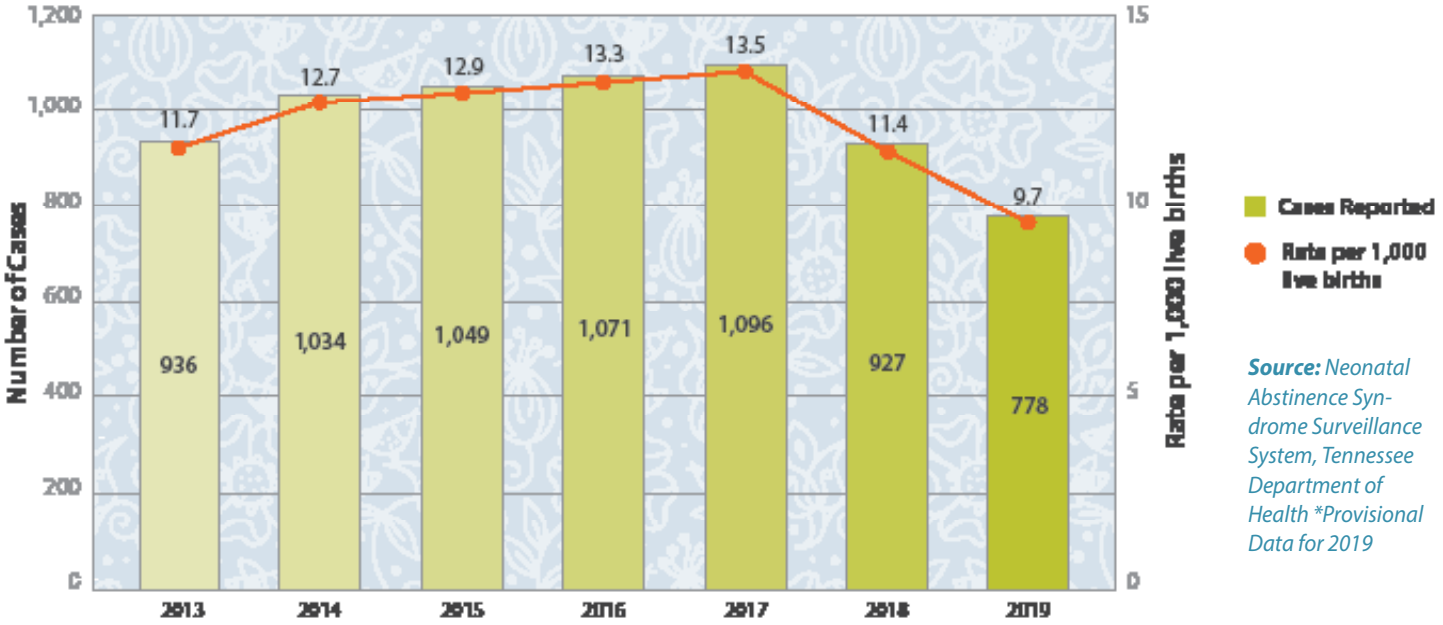
Prenatal substance use/misuse is a major problem across the country and despite education efforts, and remain a particular problem in East Tennessee and the Appalachian region. The number of infants with NAS in some of these counties are more than 10 times the national average with rates exceeding 60 per 1,000 births.

Drugs, tobacco, and alcohol that are ingested, injected, or inhaled can cross the placenta into the developing fetus' system. It may also be passed through breast milk if the mother decides to breast feed. Both of these exposures can cause long term developmental problems such as neurologic dysfunction, seizures, motor dysfunction, nerve injury, soft tissue or solid organ damage or hemorrhage. These problems acquired in utero can be permanent or even fatal for the fetus.

Due to Tennessee's Fetal Assault Law (2014-2016), although unintended, many women remain afraid or are ashamed to seek prenatal care or treatment for substance misuse. Although this law did sunset on July 1, 2016, many women are unaware or uneducated and are not seeking care early in their pregnancies. It is important to remember there is bias in reporting illicit use of substances during pregnancy is higher than legal substances, but both factors deserve careful monitoring and consideration.

The goal is to enter prenatal care and addiction treatment as soon as possible to improve birth outcomes and mitigate harm to the mother or the fetus. Healthy moms increase the odds of having healthy babies!

## Neonatal Abstinence Syndrome Trends in Tennessee 2013-2019




***Source:*** *Neonatal Abstinence Syndrome Surveillance System, Tennessee Department of Health *Provisional Data for 2019*

# General Effects of Substance Use During Pregnancy

Women that use alcohol and drugs during pregnancy often have other medical problems that can compromise the fetus. Pregnant women who use substances are at increased risk for hypertension, preeclampsia, anemia, hepatitis, spontaneous abortion and stillborn fetuses. They also tend to receive less prenatal care.

Many substances including stimulants, opioids, tobacco and marijuana cause generalized vasoconstriction that greatly reduces the blood and oxygen to the fetus.

Soon after birth, infants that were exposed to drugs in utero tend to be more irritable and are less able to self-regulate. There is a broad spectrum of infant outcomes that typically follow the infant into adulthood such as behavioral problems, personality disorders and an increased likelihood that they will experiment with substances at a younger age.

## ALCOHOL

Approximately 14 to 22.5 percent of women report drinking some alcohol during pregnancy. Risky drinking during pregnancy, defined as more than seven standard drinks per week or five or more standards drinks on a drinking day, is a primary risk factor for fetal alcohol syndrome (FAS), the most common preventable cause of mental retardation. Prenatal alcohol exposure can also result in fetal alcohol spectrum disorder (FASD), in which the affected children do not show the classical FAS pattern, but exhibit mental, developmental, behavioral and social deficits as well as birth defects. Some evidence indicates that even low-risk drinking can cause adverse fetal affects.

Maternal alcoholism is a causal factor for FAS, which includes growth retardation, characteristic craniofacial morphology and impaired mental development.

Secondary problems to children exposed to alcohol prenatally include: mental health problems, school


* *Drinking alcohol was defined as having at least one drink of any alcoholic beverage in the past 30 days.*

** *Binge drinking was defined as having consumed four or more drinks on at least one occasion in the past 30 days.*

***Key Findings Reference:*** *Denny CH, Acero CS, Naimi TS, Kim SY. Consumption of alcohol beverages and binge drinking among pregnant women aged 18–44 years – United States, 2015–2017. MMWR Morbidity and Mortality Weekly Report 2019; 68(16): 365-368.*

failure, delinquency, in appropriate sexual behavior and alcohol and other drug problems.

## TOBACCO

Nationally in 2016, approximately 7.2% of women smoked cigarettes during their pregnancy. Tobacco use during pregnancy increases the risk for complications such as ectopic pregnancy, placenta previa, and increases mortality from preeclampsia. With the increased use of electronic nicotine devices, nicotine consumption is increasing with some products having much higher concentrations than traditional tobacco products.

Effects on the infant include low birth weight, pre-term delivery, increased risk of SIDS, and increased excitability and may be difficult to soothe.

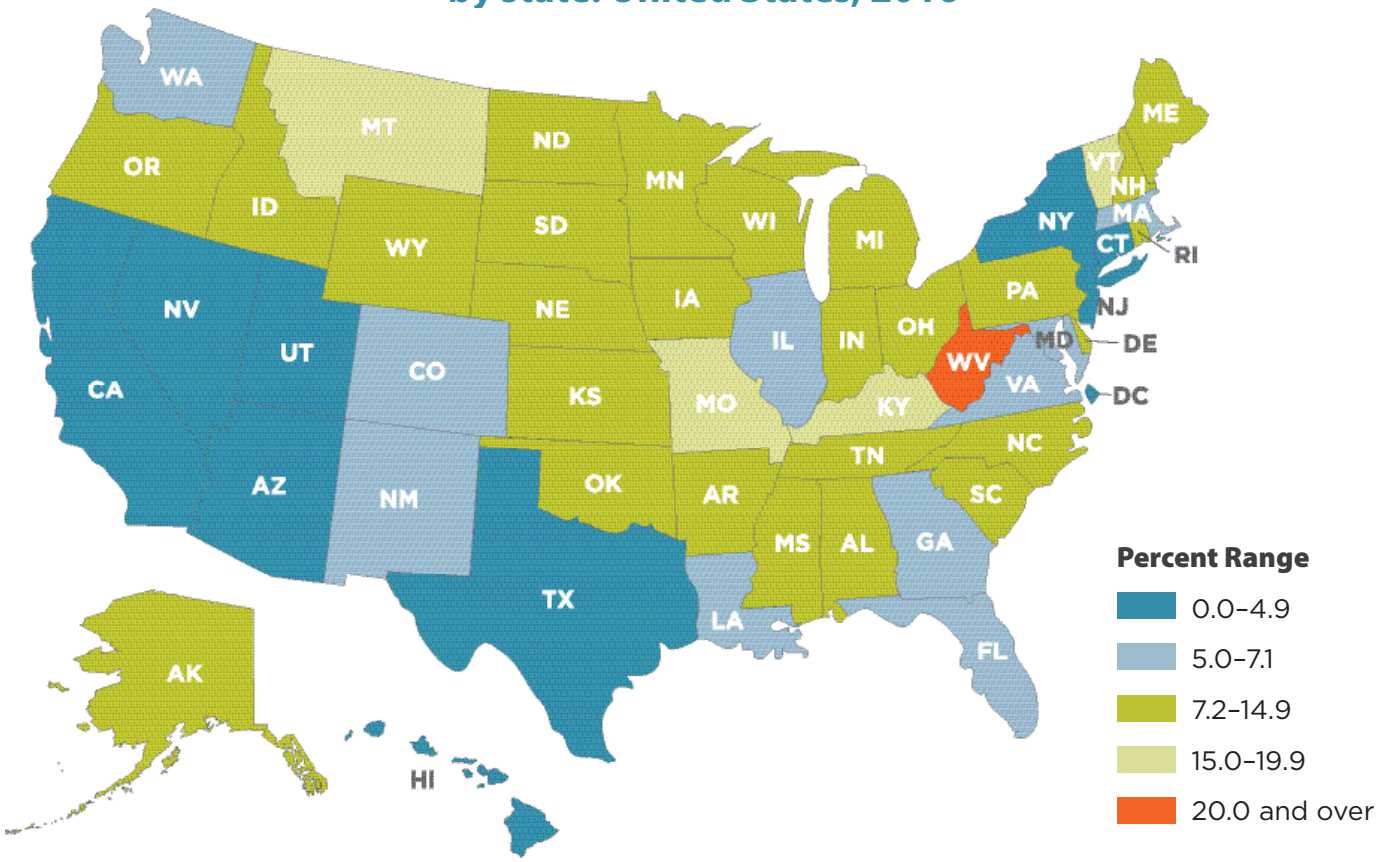
Once these children reach school age, they tend to have lower IQs and higher rates of ADD, ADHD, conduct disorder, depression and anxiety. Heavy tobacco use combined with opioid use during pregnancy has shown to have more severe withdrawal symptoms after birth.

## MARIJUANA

Marijuana exposure during pregnancy needs more research to better document the consequences of use. The greatest concern with marijuana use during pregnancy is the likelihood that the mother is also using other substances such as alcohol, tobacco and opioids.

Marijuana does pass through the placenta and affects fetal development. Babies exposed to marijuana typically have lower birth weights and developmental problems that can follow them as they grow. They may exhibit mild withdrawal symptoms and trouble with

### Prevalence of maternal smoking at any time during pregnancy, by state: United States, 2016



alertness. Later, these children have difficulty with reading, spelling and impairment in executive function.

Typically, these children also experiment with substances such as tobacco, marijuana, and alcohol at an earlier age.

## OPIOIDS

Opioid use during pregnancy can cross the placenta and affect the baby worse than the mother due to their immature liver and kidneys ability to break down and excrete the drug as an adult can. Effects can be intrauterine growth restriction (IUGR), pre-term birth, stillbirth, birth defects and neonatal abstinence syndrome (NAS).

Neonatal abstinence syndrome causes painful side effects as the baby detoxes from the mother's opiate use. These are typically hyper excitability of the central nervous system (CNS) which typically presents as severe shaking/trembling or seizures. They may have dysfunction of their gastrointestinal tract, respiratory distress, poor sucking ability and high-pitched cat like cry. These issues require a prolonged stay in the hospital making it difficult to initiate mother-infant attachment. Note: The baby is born dependent on opioids the mother took during pregnancy, but is not addicted.

This exposure follows these babies as they grow and has lifelong effects on their memory, learning, and emotional development, they have higher rates of ADD, ADHD, and personality disorders.

## GABAPENTIN

Gabapentin/Neurontin is classified as an anticonvulsant with a pregnancy category of C meaning there is not enough research to determine whether this medication is safe or unsafe during pregnancy. It should only be used when the benefits outweigh the risks of the unknown side effects to the fetus.

It may cause pre-term birth or low birth weight, but has not been linked to higher causal rates of miscarriage, stillbirths or behavioral problems. There is a high risk of Neurontin withdrawal for the infant, which presents as high-pitched crying, irritability, seizures, and vomiting. Neurontin may also have worsening side effects if used with opioids or medications used for addiction treatment, including severe withdrawal that correlates with prolonged uterine exposure.


*Tennesee Department of Health, Authorization*

## DETOXIFICATION/MEDICATION ASSISTED THERAPY

Typically, women who seek treatment for pregnancy while addicted are not detoxed but instead placed on either methadone or subutex (mono buprenorphine product), which are both synthetic opioids. Medication, combined with behavioral therapy is used for addiction treatment. These opioid medications may put the infant at higher risk of developing NAS and birth defects such as hydrocephaly, glaucoma, congenital heart defects, spina bifida, and gastroschisis. Historically, detox during pregnancy has been seen as dangerous to the baby and thought to have been associated with higher rates of miscarriage/spontaneous abortion.

Dr. Craig Towers, professor of maternal and fetal medicine at the University of Tennessee Medical Center, has published recent studies showing no linkage of harm to the fetus or higher miscarriage/stillborn rates than what is normally seen in pregnancies, nor defects if the mother is detoxed during pregnancy. This has been controversial as some suggest the physiological stress endured during detox could also be harmful to the fetus. As medical professionals, decisions must be carefully considered with full disclosure of all options with their risks and benefits to the mother. Infants may still develop NAS due to medications used for addiction treatment and may experience the lifelong effects.

## COCAINE

It is estimated that about 5% of pregnant women use some type of substance, with approximately 750,000 of those reporting cocaine use.

The use of cocaine during pregnancy can be detrimental to the infant's development. They have higher risk of placental abruption, IUGR, pre-term delivery, cardiovascular defects and disruption of their autonomic and central nervous systems. These can cause the infant to have respiratory distress, inability to regulate their temperature, and have poor reflexes.

These problems follow the infant into adulthood and as they grow. It may cause sudden infant death syndrome (SIDS), meconium staining or meconium aspiration syndrome, ADD or ADHD, cognitive delays, trouble with reasoning and aggressive behavior.

## METHAMPHETAMINE/AMPHETAMINE (Stimulants)

Amphetamine use during pregnancy is on the rise in the US, has not been well researched due to poly-drug misuse and not accounted for in most research study findings. It is believed to be associated with pre-term birth, placental abruption, low birth weight and heart or brain abnormalities.

Later in the child's life they typically experience issues with their motor development, attention impairments, cognitive and behavioral issues related to self-control and executive function.

# Solutions and Treatment



Clearly there is a problem with pregnant women using both legal, prescription and illicit substances that are harmful to their offspring. The best way to prevent this problem is to screen, both verbally and through drug testing, all female patients of childbearing age for substance use and addiction to prevent exposure before pregnancy occurs.

If you're unable to help the patient reduce their risky use, then it is imperative to talk to her about preventing pregnancy and the dire consequences her behavior would have on a developing fetus. It is highly recommended that high risk women are counseled and encouraged to use long-acting reversible contraception (LARC) to prevent an unintended pregnancy. In addition, when women present for prenatal counseling, it is very important to obtain a complete list of prescriptions and illicit drugs, as well as supplements they are taking. This way any teratogenic prescriptions or supplements can be removed from their regimen, especially focusing on opioids and benzodiazepines.

For women that present during pregnancy and using harmful substances, there are actions that can be taken to help them quit:

## ALCOHOL

Contingency management and cognitive behavioral therapy have been shown to be effective. In the case of alcohol addiction, medically supervised detoxification is standard protocol.

## TOBACCO

Contingency management strategies have shown to be very effective. Cognitive behavioral therapy is another option and nicotine replacement therapy can be considered if the benefits outweigh the risks.

## MARIJUANA

Contingency management and cognitive behavioral therapy have been shown to be effective.

## STIMULANTS (COCAINE, METHAMPHETAMINES, AMPHETAMINES)

Again, contingency management can be used, and these patients should also be referred for behaviorally based substance misuse treatment.

## OPIOIDS

These patients can be treated and weaned off their prescription drugs or illicit substances using methadone or subutex. Unfortunately, these drugs may still have an effect on the fetus and may cause withdrawal symptoms; however, it is much better than using street drugs or prescribed opioids illicitly. Another new, yet controversial option could be that the mother could go through detoxification. Preliminary research has not been proven harmful to the fetus, cause higher rates of spontaneous abortion or stillbirths. Through the detoxification process the mother would have intensive therapy sessions with case management support to help her maintain her recovery throughout the course of her pregnancy and postpartum period.

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